

Application No. 09/588,462
Submission with RCE filed 01/13/2005

Attorney's Docket No. 0119-076

LISTING OF CLAIMS

This Listing of Claims replaces all prior versions and listings of claims.

1. (Previously presented) A loudspeaker volume range control arrangement for a telephone having a loudspeaker, a microphone, and an echo cancellation system including an adaptive filter arrangement, the arrangement comprising:

means for controlling a volume range of the loudspeaker in dependence on an estimated distance between the loudspeaker and the microphone, the distance being estimated based on adaptive filter arrangement coefficients derived from signals of the loudspeaker and microphone.

2. (Canceled)

3. (Previously presented) The loudspeaker volume range control arrangement as claimed in claim 1, wherein the adaptive filter arrangement is an FIR filter.

4. (Previously presented) The loudspeaker volume range control arrangement as claimed in claim 1, wherein the largest absolute value of the adaptive filter coefficients is determined in order to estimate the distance between the microphone and the loudspeaker.

5. (Previously presented) The loudspeaker volume range control arrangement as claimed in claim 1, wherein the filter coefficients are summed or averaged in order to estimate the distance between the microphone and the loudspeaker.

6. (Original) The loudspeaker volume range control arrangement as claimed in claim 5 wherein a weighted average of filter coefficients are determined in order to estimate the distance between the microphone and the loudspeaker.

7. (Currently amended) ~~The loudspeaker volume range control arrangement as claimed in claim 1~~ A loudspeaker volume range control arrangement for a telephone having a loudspeaker and a microphone, comprising:

a controller that controls a volume range of the loudspeaker in dependence on an estimated distance between the loudspeaker and the microphone based on signals of the loudspeaker and microphone, wherein the ratio or the difference between the energies of the loudspeaker signal and the microphone signal is used to estimate distance between the loudspeaker and the microphone.

8. (Previously presented) A telephone having a loudspeaker and a microphone and a loudspeaker volume range control arrangement as claimed in claim 1.

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9. (Original) A motor vehicle fitted with a telephone as claimed in claim 8.

10. (Previously presented) A method for controlling the loudspeaker volume range for a telephone having a loudspeaker, a microphone, and an echo cancellation system including an adaptive filter arrangement, the method comprising:

estimating a distance between the microphone and the loudspeaker based on adaptive filter arrangement coefficients derived from signals of the loudspeaker and microphone; and

controlling a volume range of the loudspeaker in dependence on the estimated distance.

11. (Canceled)

12. (Previously presented) The method as claimed in claim 10, wherein the adaptive filter arrangement is a FIR filter.

13. (Previously presented) The method as claimed in claim 10, wherein the largest absolute value of the adaptive filter coefficients is determined in order to estimate the distance between the microphone and the loudspeaker.

14. (Previously presented) The method as claimed in claim 10, wherein the filter coefficients are summed or averaged in order to estimate the distance between the microphone and the loudspeaker.

15. (Original) The method as claimed in claim 14, wherein a weighted average of filter coefficients are determined in order to estimate the distance between the microphone and the loudspeaker.

16. (Currently amended) ~~The method as claimed in claim 10~~ A method of controlling a loudspeaker volume range for a telephone having a loudspeaker and a microphone, comprising:

controlling the volume range of the loudspeaker in dependence on an estimated distance between the loudspeaker and the microphone based on signals of the loudspeaker and microphone, wherein the ratio or the difference between the energies of the loudspeaker signal and the microphone signal is used to estimate distance between the loudspeaker and the microphone.